

## THE INVENTION CLAIMED IS

1. An organic electroluminescent display device including at least one carrier-transporting layer comprising a liquid crystal substance and at least one organic luminous layer sandwiched between a transparent electrode and a backside electrode each held in parallel to the other,

wherein a layer adjacent the liquid crystal substance is an oriented layer; and

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage.

2. The organic electroluminescent display device according to Claim 1, wherein the organic luminous layer includes a polymer.

3. The organic electroluminescent device according to Claim 1, wherein the organic luminous layer includes a low molecule-dispersed polymer.

4. The organic electroluminescent display device according to Claim 1, wherein the organic luminous layer comprises a bilayer of a polymer and a monomer.

5. The organic electroluminescent display device according to Claim 1, wherein the carrier-transporting layer includes a nematic liquid crystal layer.

6. The organic electroluminescent display device according to Claim 1, wherein the carrier-transporting layer comprises a liquid crystal layer having a low-molecular carrier-transporting substance dispersed therein.

7. The organic electroluminescent display device according to Claim 6, wherein the liquid crystal layer contains two or more different organic compounds.

8. An organic electroluminescent display device including at least one carrier-transporting layer comprised of a liquid crystal substance and at least one organic

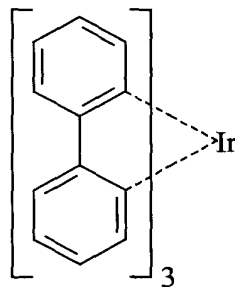
luminous layer sandwiched between a transparent electrode and a backside electrode each held in parallel to the other,

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage;

wherein the carrier-transporting layer comprises a liquid crystal layer having a low-molecular carrier-transporting substance dispersed therein;

wherein the liquid crystal layer contains two or more different organic compounds; and

wherein at least one of the two or more different compounds is  $\text{Ir(ppy)}_3$  having a formula of:



9. An organic electroluminescent display device including at least one carrier-transporting layer and at least one organic luminous layer comprising a liquid crystal substance sandwiched between a transparent electrode and a backside electrode held in parallel to said transparent electrode,

wherein a layer adjacent the liquid crystal substance is an oriented layer; and

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage.

10. The organic electroluminescent display device according to Claim 9, wherein the carrier-transporting layer comprises a polymer.

11. The organic electroluminescent display device according to Claim 9, wherein the carrier-transporting layer comprises low molecule-dispersed polymer.

12. The organic electroluminescent display device according to Claim 9, wherein the carrier-transporting layer comprises a bilayer of a polymer and a monomer.

13. The organic electroluminescent display device according to Claim 9, wherein the organic luminous layer includes a nematic liquid crystal layer.

14. The organic electroluminescent display device according to Claim 13, wherein the liquid crystal layer includes two or more different organic compounds.

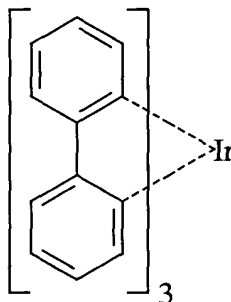
15. An organic electroluminescent display device including at least one carrier-transporting layer and at least one organic luminous layer comprising a liquid crystal substance sandwiched between a transparent electrode and a backside electrode held in parallel to said transparent electrode,

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage;

wherein the organic luminous layer includes a nematic liquid crystal layer;

wherein the liquid crystal layer includes two or more different organic compounds; and

wherein at least one of the two or more different organic compounds  $\text{Ir(ppy)}_3$  having a formula of:



16. An organic electroluminescent display device including an organic luminous layer and a carrier-transporting layer, either one or both of which includes a liquid crystal, sandwiched between a transparent electrode and a backside electrode,

wherein a layer adjacent the liquid crystal is an oriented layer; and

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage.

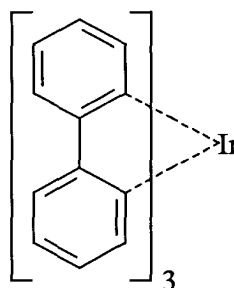
17. The organic electroluminescent display device according to Claim 16, wherein the liquid crystal includes two or more of different organic compounds. display device in response to magnitude of an applied voltage.

18. An organic electroluminescent display device including an organic luminous layer and a carrier-transporting layer, either one or both of which includes a liquid crystal, sandwiched between a transparent electrode and a backside electrode;

wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage;

wherein the liquid crystal includes two or more different organic compounds;  
and

wherein at least one of the two or more different organic compounds is  $\text{Ir}(\text{ppy})_3$  having a formula of:

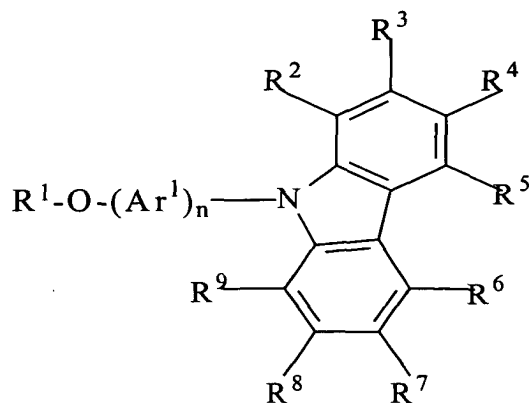


19. An organic electroluminescent display device including at least one organic luminous layer comprising an electroluminescent liquid crystal sandwiched between a transparent electrode and a backside electrode each held in parallel to the other,

wherein a layer adjacent the electroluminescent liquid crystal is an oriented layer; and

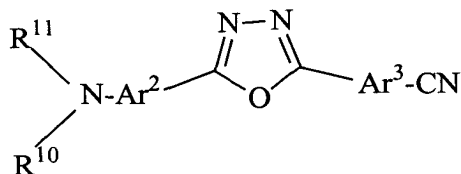
wherein said display device is driven as a liquid crystal display device or as an electroluminescent display device in response to magnitude of an applied voltage.

20. An organic electroluminescent liquid crystal comprising a chemical compound having a general constitutional formula of:



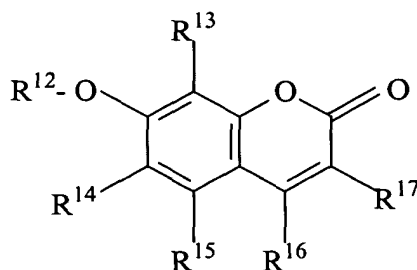
wherein  $R^1$  is a straight-chained alkyl group containing 1-20 carbon atoms,  $R^2$  to  $R^9$  is individually hydrogen or an alkyl group containing 1-3 carbon atoms, and  $Ar^1$  is a substituted or non-substituted aryl group containing 6-14 carbon atoms.

21. An electroluminescent liquid crystal comprising a chemical compound having a general constitutional formula of:



wherein  $R^{10}$  and  $R^{11}$  are individually straight-chained alkyl groups containing 1-20 carbon atoms, and  $Ar^2$  and  $Ar^3$  are individually substituted or non-substituted aryl groups containing 6-14 carbon atoms.

22. An electroluminescent liquid crystal comprising a chemical compound having a general constitutional formula of:



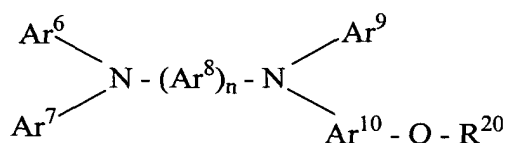
wherein  $R^{12}$  is a straight-chained alkyl group containing 1-20 carbon atoms, and  $R^{13}$  to  $R^{17}$  are individually hydrogen or alkyl groups containing 1-3 carbon atoms.

23. An electroluminescent liquid crystal comprising a chemical compound having a general constitutional formula of:



wherein  $R^{18}$  and  $R^{19}$  are individually straight-chained alkyl groups containing 1-20 carbon atoms, and  $Ar^4$  and  $Ar^5$  are individually substituted or non-substituted aryl groups containing 6-14 carbon atoms.

24. An electroluminescent liquid crystal comprising a chemical compound having a general constitutional formula of:



wherein  $R^{20}$  is a straight-chained alkyl group containing 1-20 carbon atoms, and  $Ar^6$  to  $Ar^{10}$  are individually substituted or non-substituted aryl groups containing 6-14 carbon atoms.